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ABSTRACT

This survey is based on clearly enunciated hypotheses with regard to the structure of our society, its probable development, and how we would like it to be. The introduction presents the purpose of the book. Section II attempts to outline the position of society and of education. Those reactions that obstruct change and which have to be explained in anthropological terms also form part of this initial situation. Section III states the objectives from the standpoint of principles, institutions, content, and methods. Section IV offers a few suggestions on how the proposed objectives can be approached. The conclusion draws attention to the political problems involved in such a prospective study. (NL)

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PERMANENT EDUCATION

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STUDIES ON PERMANENT EDUCATION

No. 4/1968

PERMANENT EDUCATION IN THE FEDERAL REPUBLIC OF GERMANY

Devices proposed

by

Hans TIETGENS

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I. INTRODUCTION

The Council of Europe has requested a plan that might serve as a guide for the long-term development of the educational system. This survey is designedly Utopian, i.e. forward-looking; it is not bound by present-day material and political limitations in education, but is more in the nature of a statement of aims. It must nevertheless be based on clearly enunciated hypotheses with regard to:

- the structure of our society,

- its probable development,

- how we would like it to be to render it worthy of man.

It must also propose ways and means of achieving this objective.

To think in terms of aims instead of initial conditions implies that a tactical approach to educational reforms does not meet either the present situation or future requirements. We must reckon with qualitative changes in the situation; and the organisation and content of education and teaching methods can meet these changes only if they are conceived no longer in terms of the past but in terms of the future. Of course changes can only be introduced step by step; but the steps will be faltering and haphazard in the absence of any ideas as to the future.

Nowadays, it is very rare to have to plan a Utopia. Utopias are thought of as play, and dangerous at that. The objections to them are not without foundation. Aims that are unrealistic in the light of day, but of which one is convinced, lead one very easily into moral intolerance and, ultimately, political terror. The fear of planning appears to be justified, for planning tends to demand too much of men and force them to something they are unable to keep up for any length of time.

But it would be equally regrettable if such considerations were to induce us to abandon any attempt to be far-sighted in educational policy. There are then three great dangers:

- that we shall fall behind developments,
- that individual measures will not be co-ordinated and will hamper each other or cancel each other out, and

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- that who are supposed to help effect the changes lack the necessary dynamism and thereby find no pleasure in contributing.

Clear long-term objectives, on the other hand, offer decisive advantages. They may serve as:

- guidelines providing scope for constructive individual ideas;

- points of reference and values by which to judge specific measures; and

- incentives to overcome obstacles.

It should also be borne in mind that such long-range studies are especially necessary and valuable at the present time, for:

- we live in an age of rapid change. This tends to encourage ephemeral action and small-minded decisions; whereas long-range planning could guarantee a minimum of continuity;

- the interdependence and reciprocal effects of phenomena and actions may have unforeseen consequences unless one looks far ahead;

- the changes that are taking place - whether we like it or not - are such as to demand not just isolated reactions but a total reshaping of the educational system.

There are two main reasons why it would seem necessary to have prospective model concepts on which to base reform:

- The educational system and changes in it are fundamental to other spheres. Its development affects a community's productivity; its organisation largely conditions the degree of democratic self-determination in a society. To point out that the educational system is only a functional element of the economic system simply indicates the potential role of a Utopian educational project. The only way to overcome anything sanctified by custom is to apply an educational concept that can help man to liberate himself without reducing productivity and the capacity for learning.

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- In the present complicated situation it is in this very field, which is not determined solely by institutions and where an agreeable and comfortable past plays a preponderant role, that planning for the future needs to be strongly advocated.

In view of the tendency to be guided by the past, partial plans for the immediate future are no alternative. Indeed, in such a situation it is the concept which at first sight seems Utopian, that appears to be functionally justified.

Comprehensive long-range planning of this kind may serve as framework and guide for the various reforms to be undertaken, some of which will have already been discussed. It also provides a context for educational policy, by means of which isolated changes can be prevented from causing bewilderment and social disturbances. It is precisely when it is thought advisable to settle social and educational problems as rationally as possible that care must be taken to do so in accordance with some essential rationale, (Karl Manheimer), not just with the aid of a functional one. But such an approach to the material problems is possible only if emotion and the need for it are harnessed to rationally-based long-term objectives. (The inverse procedure of using rational means to attain irrational aims is typical of all forms of fascism.) In recent years it has been thought that Utopian plans could be dispensed with, since realistic planning of education seemed to have become possible with the help of educational economics. But before placing excessive hopes in educational planning based on economics one must realise the possibilities and limits of such planning. If it adheres strictly to its own methods it remains confined within the quantitative. In view of the excessive amount of speculation in educational literature this is bound to appear suspicious. It should nevertheless not be forgotten that educational planning rests in a large measure on extrapolations, which do not permit adequate account to be taken of qualitative changes and changes in behaviour resulting from a changing situation. Furthermore, such calculations presuppose rational conduct. While the experience of the last 20 years may seem to justify such a supposition, the attitude of youth in recent years argues against it.

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Thus if we choose to consider education in more economic terms than previously, we must not overlook the increasing tendency to take a partly psychological view of economics. But, however educational planning develops, it will not make rationally-based Utopias superfluous, provided one does not place one's faith in extrapolations. In other words, educational needs cannot be determined accurately or relevantly by purely quantitative analysis insofar as this method ignores the possibility of working for a qualitative aim. From this aspect, too, a plan with Utopian features seems justified.

The present study is therefore intended as an impetus to free thought, an instrument for reflection, on the future of the educational system. Such reflection should not be hampered or discouraged by existing conditions or commitments. The project aims at opening up prospects which, because their chances of rapid realisation seem too slight, do not, in the author's view, receive adequate attention in the extensive discussions held on piecemeal aspects of educational reform. For those conversant with the subject, much of what is said and proposed here will seem mistaken, or over-simplified and exaggerated. This is not simply due to the inevitable brevity of the present contribution; it must be regarded as a challenge, for the disparity between the demands of society and the educational supply is constantly growing. Such a state of affairs should be sufficient justification of the risks inherent in resolute planning. These risks are not particularly great in the Federal Republic of Germany. Our understanding of federalism and pluralism is a sufficient brake. There is little danger in the Federal Republic of any planning that disregards the facts and develops at such a pace that human behaviour cannot keep up with it.

A project conceived as a Utopia must nevertheless take as its point of departure the situation in which it is worked out. This is taken care of in Section II, "The present situation", which attempts an outline of the position of society and of education. Those reactions that obstruct change and which have to be explained in anthropological terms also form part of this initial situation. Even if one considers that such obstacles have a social origin, they nevertheless merit special attention. In past discussions

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on education, they have been largely ignored. Section III states the objectives from the standpoint of principles, institutions, content and methods. Section IV endeavours a few suggestions on how the proposed objectives can be approached. The Conclusion draws attention to the political problems involved in such a prospective study.

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II. THE PRESENT SITUATION

1. Social needs

If we ask what phenomena in present-day society are especially relevant to a reform of the educational system looking to the future, the increased mobility of society must first be mentioned. The time for learning can no longer be limited to the period of "social adaptation". The basic equipment which children and adolescents receive from the family and school no longer suffices to fit them for a permanent place in civilisation. This fact alone justifies critical reflection on the educational system.

It is not enough simply to prolong the existing duration of education and attach more importance to adult education, or to render our school system more open. It is more a question of reforming the structure of the system as a whole. For the efficiency of adult education depends on the duration, nature and quality of the school system; this is not just an obvious surmise, it has been established empirically.

But before drawing conclusions from this most conspicuous social phenomenen, we must ask ourselves what the causes and effects of the mobility are. Here other social factors relevant to educational policy may be taken into account.

It can be assumed that the rapid changes that are taking place are the outcome of a process which we have grown accustomed to call industrialisation. It is characterised by a specific combination of inventiveness and economic organisation, of applied science and political principles. It is only the convergence of these factors that permits the deployment of technology, which is the essence of practical procedures and a promoter of mobility.

What matters for the development of education is not so much the factors that have directly advanced this industrial development, i.e. the new sources of energy opened up from time to time, as the intensified division of labour introduced simultaneously. One of the results of this has been to make occupational requirements more specific. It has also brought about a reorganisation of society and a change in human relations. It has become apparent that man's ability

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to meet the demands of this increased division of labour is limited and varying. The behavioural difficulties are due to the fact that this ever greater differentiation of work separates man more and more from his fellows, his sources of information and the centres of decision. This gives rise to special problems of contact, information and government. The initial answer can only be to determine to what extent man's intercourse with himself and others, with information media and social institutions can be furthered by means of educational system and the organisation of instruction.

Another consequence of the shifting division of labour is that the differentiation of social phenomena and factors demands intensified co-operation to make the system work. The division is apparent in complex systems that guarantee our means of subsistence but in which we too are harnessed. A particular aim of education must therefore be adjustment. This involves the danger of failure to exercise our critical faculties for the purpose of thoughtful differentiation. We need this quality, and not only in order to understand ourselves as human beings. The critical faculties are essential in order to improve our living conditions if they are to remain serviceable.

We must therefore accept intellectually, and accustom ourselves to the fact, that adjustment and criticism are not mutually exclusive. Thus industrialisation and democratisation call on the one hand for the widest possible distribution of skills but on the other for centralisation of decisions of a vital nature.

It should further be noted that the effects of mobility in so many different fields increases the educational needs and this must be taken into account in any rethinking of the educational system. Apart from the fact, which is fundamental to the learning process, of the increasingly rapid changes in the state of our knowledge - a fact which makes lifelong learning necessary - we may mention:

- The change in the age pyramid: the proposition of older people in the overall population is increasing. This compels us to reconsider their social role, and to ask ourselves how man can be prepared for old age.

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- The changes in labour requirements caused by the spread of automation and the quantitative and qualitative growth of the tertiary sector. These do not simply demand a capacity for retraining. Quite apart from this, man must be prepared for greater claims on his capacity for abstraction and co-operation. This means that he must develop his ability to learn and to handle abstract realities, while increasing his intuitive powers and dependability.

- The transformations in the social structure brought about by the increase and diversification of employed labour. These, together with the changes in qualifications required, which vary from occupation to occupation, lead to vagueness and uncertainty with regard to the individual's position in society. It is therefore necessary either to develop new attitudes to work and a new kind of awareness with regard to social position or to aim at making social status gradually a matter of relative indifference.

- The shift in the relationship between work and leisure, which seems to suggest that leisure-time cultural activities, the cultivation of good taste and consumer education should no longer be limited to privileged classes but should be regarded as a general task of education.

- The changes in the world political situation, as a result of which the national has lost in importance, even though this is currently offset by a tendency to tribalism. This means that rapprochement between the peoples calls not only for multi-lingualism but also for the abandonment of automatic ethnocentricity.

- The greater wealth of information, despite which we are no better informed. On the contrary, it is becoming more difficult to perceive the filter through which information has passed, the partial and selective nature of information received and to resist manipulation.

If we accept that our life is determined by work as a means of livelihood, by politics as the basis for opportunities for free development and by leisure as the area of realisation of individual desires, it becomes apparent that in each case a greater capacity for abstraction is required than in the past. This demands more intensive cultivation of rational

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powers and abilities. But such training can be successful only if one also knows how to develop man's emotional powers. Thus the capacity for abstraction must not be cultivated at the expense of emotion. Only the two together can produce the impartial critical attitude with which we must henceforth approach our environment if we do not wish to help destroy it.

2. Educational needs

The educational concepts which determine the present system in the Federal Republic of Germany are in conflict with the above aim for our relationship with ourselves and society. The difficulties this creates must be stressed here, for they have been partly concealed by the reforms attempted in past years. It is true that many things have changed since the days when those who are today responsible for educational policy were schoolchildren themselves. One cannot simply reproach our schools with immobility. But the changes that have taken place have not yet touched the basic structures of the system.

In the last analysis the system is:

(a) child-orientated in its fundamental principles,

(b) uncritical encyclopeadic in its curriculum,

(c) feudal in its organisation and

(d) fear-motivated in its methods.

Let us be more specific.

(a) During the second half of the 19th century the idea prevailed that man's education was something limited to childhood and adolescence. This attitude, based on the idea that maturity increased with age, ensured an unambiguously authoritarian structure. It was strengthened by the influence exerted on the schools by state and church. Education was a mixture of propaedeutics and of factual information determined by tradition. The subjects taught in primary school were never extended further than seemed consistent with calm, and order or absolutely necessary. In secondary

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education, on the other hand, humanist principles prevailed, though it was sought to substitute national culture for the typical keynote of the Age of Enlightenment. Although the idea of the systematic training of children and adolescents at school was accepted, the same thing for adults seemed abnormal.

(b) As different kinds of school grew up, their educational content came to be defined on a functional basis. Thus their initial successes gave them the good reputation they still largely enjoy today. Shortcomings were mainly detected only when there was an obvious gap in the canon. In this way curricula were added to over the years, but hardly ever thoughtfully pruned. Thus more and more subject matter was introduced. This "adding-on" process, which was reduced only gradually through the introduction of optional subjects, encouraged thought in terms of quantity and cramming, and thereby lack of interest.

(c) All the additions to, and variations in, the curricula had, in the final analysis, no effect on the organisational structure. Developmentsin the labour market made it possible to postulate two, and later three, qualification levels, and the organisation of education became geared to this. In this way it was possible to conceal the fact that, especially through its conditions of entry and its segregation, the system gave social classes the opportunity to keep to themselves. The formal abolition of many educational privileges had little effect on the psychological barriers, which found tangible justification in the fact that the tripartite structure was conceived to correspond to social classes and to shield them. It rested on concepts of talent that confirmed the existing organisational pattern, manifestations of talent that might have refuted the accepted idea of society being ignored or stifled. Even the perversion that has recently emerged, whereby matriculation standard is stipulated for many occupations, in which it is not strictly necessary, has justified and lent support to the existing system by creating false prestige requirements.

(d) The methods in force served the ruling classes. The quantity of knowledge, protected or concealed by upper-class manners acquired in the course of competition, was the criterion for scholastic success and subjected pupils to the pressure of formal absorption of the

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knowledge. The techniques for helping them were so formalised in educational theory that the practicians regarded them as irrelevant, and in their methods took for themselves the freedom they were denied with regard to content. Pupils were thus exposed on the one hand to politically-channelled teaching and on the other to the teacher's arbitrary methods and thereby to his incapacity, which was aggravated by his training. It was therefore fear which led to scholastic success unless one had the privilege of outside help.

It will be objected that the above picture of schools is long out-of-date and that all the negative phenomena mentioned have been eliminated during the last decade if not earlier. This is admittedly true of many details. But the basic structure of our education has not yet been changed in any vital point. Partial reforms cannot obscure the fact that the criteria governing the choice of subjects, the way in which studies are organised and the role of the teacher have in the last resort remained unaltered. An exaggerated picture serves our purpose better by making clearer where the future must differ appreciably from the present.

It cannot be denied that, on the whole, the German school system has of its two possible functions of innovation or maintaining tradition, definitely over-emphasised that of handing down the cultural heritage. But what is needed for the future is - without cutting ourselves off from the past - to design the educational system in such a way as to adjust men to the accomplishment of new tasks.

The achievement of his aim is hampered if planning is made contingent on considerations of what level of skills will be most in demand in the future. There are a number of arguments against making the school the dispenser of social prospects, which it has become recently at the expense of its real task. Forecasts of future requirements are uncertain, and it would be a big step forward if we could wean ourselves from the concept, which unconsciously determines our thought and action, of the following three levels of skills:

- muscular strength and dexterity;

- calculation and writing, buying and selling;

- logic and leadership.

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In its distribution of social prospects the school has consolidated the hierarchical structure of society. At the same time it has encouraged the pretension that the completion of certain studies and the obtaining of certain certificates should in all circumstances confer rights. This orientation towards promotion has obscured the fact that one must go on learning if only so as to minimise the danger of decline. It is furthermore obvious that the right to education loses its fundamental character if it is geared to social and economic requirements. In the future, we shall have to learn to live with the fact that, while the educational system will have to take even greater account of social needs, if it devotes all its energies to this, it will fail in its purpose. Only with a feeling for the value of digressions and for apparent superfluities is it possible to do justice to the requirements of society.

This intricate task is not just a matter for moralising; it calls for an institutional reform of our educational structure. The system needs to be so designed that to learn and to learn yet more is seen as the natural thing for man to do and not as proof of exceptional ability.

Insofar as they have hitherto been prompted by marginal considerations, educational reforms have been institutionally inadequate and, furthermore, have confused the public, who need to understand them so that they can help carry them out. It is therefore necessary that people should be made aware of the importance of fundamental reforms in which they are involved, or whose consequences affect them at least.

By way of example it may be mentioned that, while the first experiments with the comprehensive school (Gesamtschule) in the Federal Republic of Germany have been successful, in that such schools appear to make secondary education more widely available, in the present transitional phase this reform is producing attitudes to learning and teaching that are in no way intended and which in the long run are bound to detract from its success.

Apart from this example it would appear desirable, in order to ensure and maximise the success of far-reaching reform projects, to bear in mind the human obstacles to changes in general and educational change in particular.

3. The human aspects

It is not surprising that social changes are being introduced with the greatest circumspection by those responsible for present conditions. Nor is there any doubt that the more complex the circumstances in which the changes have to be carried out, the more difficult they will be to achieve. There is, however, one fact which merits more attention than is generally paid to it:

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changes that are intended to be neither marginal nor revolutionary, but from which a gradual but fundamental transformation is hoped for, usually meet with little response among large sections of the public whose co-operation is required. The reasons for this noteworthy state of affairs should be taken into account in the planning of educational reform.

It must be borne in mind that all men are inclined to think outwards from their own situation. A result of this form of egocentricity, this inability to leave one's own circumstances out of account, is that we find it difficult to some degree to imagine conditions different from ours. In view of this lack of detachment from one's own space scale and, above all, one's own time scale, any attempt at change seems an extraordinarily hazardous enterprise, and our desire for security and our inertia oppose it.

These tendencies are based on a sense of need for what can best be described as security and prestige. If these notions are the criteria whereby our social structure and the education we supply are judged, then any plan that aims at change will of necessity seem suspect. If we think and act with a view to respect and security, we become more prestige-conscious, and this hinders all change, for change appears to entail uncertainty. Instead we seek and find happiness in a hierarchical system in which we know our place - who is above and who below us. The impulse to conserve therefore favours the status quo even if it is obviously out-of-date and unproductive.

Such attitudes are intensified by a kind of self-induction in the educational system. The process of comparing that marks the years before the child goes to school, which is legitimate in view of his inadequate knowledge of the world, is carried over, as a result of the manner of his education and teaching, to periods of life in which it must be regarded as infantile. In the absence of other safe opportunities for the individual, this urge to measure himself against others finds expression in the field of consumption where it can perform an economic function. Man's further education therefore concentrates on technical accomplishments that enable him to remain in the race without undue exertion. In this way the status quo gains support from Vanity Fair.

Even where the centres of power are inclined to be conservative they do not hold up technical change. Indeed, in the end they enforce concessions in the ordering of human society. These, however, often look like wisdom after the event, in other words they are effected after the most favourable moment has passed. If such changes are not then as successful

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as was hoped, the will to reform falls into even greater disrepute. Other illogicalities in the shape of half-introduced and misconceived reforms, with success to match, will then also be invoked to argue that what went before was better.

This can best be illustrated by an example taken from methods rather than institutions, for problems of method require more perspicacity on the whole. After the Second World War people in the Federal Republic of Germany were fairly ready to accept that the traditional authoritarian concept of school and education had hardly helped the learning process and had had disastrous political consequences. A trend towards non-authoritarian education was unmistakeable, but it unfortunately encouraged laisser-faire methods. Standards, examples and guidance were utterly renounced, often for reasons of convenience or out of impotence. If the demand for "democratic" education had been properly understood, the consequences could have been foreseen. Instead they were taken as evidence that whatever was new was a delusion. One spoke of the failure of authority, and hastened to demand again authority of a kind that is attainable only by authoritarian methods. Once again, no thought was given to the functional authority that in fact was necessary; the old familiar behaviour pattern from the past was invoked which understands authority as meaning to be able to give orders without having to justify them.

In the Federal Republic, the general wariness of change and of the desire for it is strengthened by a variety of special circumstances. Perfectly appropriate forms of behaviour are often made ineffectual by their exaggeration in particular conditions, so that they eventually confirm the status quo. Thus the tendency to make the best of any situation is confined within the short-term perspective of momentary success. An obsession with the here and now destroys the scope for imaginative innovation. What is left of the desire for change wears itself out in revolt on matters of principle without seeking pragmatic relevance. The idea of performance, for example, is falling into disrepute because people are unable to dissociate it from the social order which is under attack. Division of labour seems an evil that estranges man from his fellows, although it is necessary in order to create the conditions in which the individual can develop his personality. Thus reason and emotion remain unreconciled, and so there is no sufficient basis for change. We cannot discuss here the extent to which political methods strengthen this attitude; we must now explain the proposals made to remedy the situation described.

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III. OBJECTIVES

Any plan for a future educational system must state

- the fundamental principles,
- the institutional structure, and
- what curricula and methods are proposed.

1. Principles

The needs of humanity and mobility - man's own aspirations and the development of society - call for permanent education. Man is not a learning being simply by disposition and in contrast to other creatures: his environment needs to be such that society appears to him as an aggregate of things to be learned. Some of these are acquired spontaneously; others must be organised to meet certain requirements resulting from change.

Intentional learning must therefore begin earlier and end later than at present. The school can thus be relieved of some of its burden and can revert to its original function.

One example of an earlier start to planned learning would be to begin to learn a foreign language at a time when it can still be learned in the same way as one's mother tongue. This presupposes that techniques of learning through play can be developed.

For planned learning to end later requires that after-school learning must be regarded as a matter of course, not as excess of zeal on the part of someone obsessed with promotion or as clownish oddity. This objective can be achieved provided that:

- the school concentrates on imparting the ability to learn, on providing the basic knowledge and qualification that are essential in all cases. More specific attainments can be left until the need for them is immediately apparent to the individual. When learning energy is mobilised to meet a given situation it may also be more effective;

- vocational training, too, concentrates on the basic knowledge required for a given occupation and is able to count on further training by stages;

- adult education offers a wide range of subjects that, in addition to giving the individual opportunities and aids for further study, helps that study to gain public esteem, even

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where its specific function is not immediately apparent. However, the teaching provided must convey the experience that learning means effort and pleasure.

Permanent education presupposes that the various subjects and teaching organisations available are co-ordinated in such a way as to convince students that there is coherence and continuity in the educational opportunities offered to them. This needs to be stressed and must be given careful consideration, for much of present-day adult education is a repetition of something already available at an earlier, perhaps unsuitable, stage. This is why it is so ineffectual. Once it has precise functions it will carry more weight; it will also have to become more attractive to the public. This will involve legal and institutional changes.

The second fundamental principle which should govern structural reform follows from the first. The basic aim of the change should be to convert the present vertical structure of the educational system into a horizontal one. This is bound to give rise to the objection that levelling down and reduced efficiency will inevitably follow.

When thinking out an educational system one should not be preoccupied with a system of solid blocks fitted one above the other without any cracks. The fictitious notion of a general level with variations must be abandoned. It assumes a criterion that is arbitrary if intended as an overall standard. Such a criterion cannot be used, or even fixed, except in relation to a particular defined subject. If it is applied throughout the educational system, as, to a large extent, the classicist's criterion is in the Federal Republic of Germany, it must be acknowledged that the concepts of degree and level that are involved are incomplete and underestimated those things whose intrinsic value cannot be measured by such a criterion (notably in technology and the natural sciences).

Such intrinsic values must determine future criteria. It would be no answer to the problem to substitute for the classicist's criterion another one laying claim to general applicability. What is necessary is to draw the conclusions from current developments, and accept the co-existence of several criteria. "Streaming" trends in secondary schools have fulfilled the first requirements. In order to reform the educational system we must think further along these lines.

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This means that after pre-school education growing differentiation will have to be made possible, with individual sectors in a horizontal relationship to each other, each determining its own rate of vertical progress. The level attained will depend on the sector in question, without any hard-and-fast rule as to the level at which one begins in case of transfer, by necessity or choice, to another sector. In this way groups of a relatively homogeneous level of attainment can be formed. As most pupils will belong to several groups of different levels the psychologically detrimental effects of a school organised in terms of attainment will be less great. Movement through the system need not necessarily be along a single vertical line. The system will receive its sanction not from a pattern of organisation handed down by the authorities but from the merits of what is learned.

The practical consequences for the educational system of such a shift from a vertical to a horizontal structure will be described in the section on institutions. But it is important to point out here that this reorganisation may be a step towards a system of qualifications that will not necessarily confer some immediate status but at the same time will not diminish pleasure in learning.

Another advantage offered by this reorganisation is the flexibility of the system it will bring about; this will facilitate the subsequent introduction of variants. The peculiar difficulties of educational planning lie in the fact that our teaching and learning methods must be designed to prepare for changes whose exact nature we do not yet know. The need to prepare for changes as yet unknown the time of which is equally unknown, dictates a third planning principle: it will be necessary to learn how to learn. This is such a reasonable demand that it has already been voiced for some time. However, little progress has yet been made in this direction. At all events, constant training in learning is necessary to preserve the flexibility already required of man, which will be required to an ever greater extent in the future. How vital such flexibility is may be seen, for instance, in the tension between the generations, which has again become particularly acute.

Thus some form of training to learn seems necessary that will involve thought about the actual process of learning. To this end the learner must devote himself unreservedly to learning for a certain time, and subsequently assess critically and impersonally, what he has done and how he did it in concert

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with others, so that he can reflect on what such co-operation or discussion may mean, how it came about, what forces contributed to it, how he regarded the teacher and the other learners and so forth. Thus training to learn provides an opening for dynamic group processes. In our present educational practice it is still extremely rare. This shows clearly how far we still have to go before such training is sufficiently widespread.

An important step towards conscious training in learning - and this brings us to the fourth principle - is to break the taboo of not discussing at school what happens there. If this is done, a decisive step will have been taken towards reorganising the educational system. Two challenges will have been taken up at once. Firstly, mechanisms in the learning process which have always wrongly been regarded as too intimate for discussion will have been laid bare, and this will increase the efficiency of that process. Secondly, reflection on what happens at school will develop the critical faculties. It will be possible to discuss openly the conflicts of functions at school. This is a better way of democratising the school than are purely formal means of participation. Thought about the learning process and such conflicts is also the best kind of preparation for life's later demands.

When contemplating a future educational system, then, learning must not be understood solely as the acquisition of knowledge. What is much more important is to help cultivate sociability and the finer feelings, for these provide the emotional basis for effectiveness and the "education for peace" that is demanded in private, social and international life.

This account of the situation has, however, revealed a further requirement of general relevance in reform of the educational system. What has received insufficient attention under the present system, be it in the comprehensive school or at university, is the exercise of relating theory and practice. The learning process in adults is nowadays seriously handicapped by an inability to combine concrete professional experience with new information, which is bound to be in some degree abstract, in a reasoned and critical amalgam of practical knowledge. The result is that everything new, all knowledge imparted by others, acquires the reputation of being "theory" or is accepted only insofar as it is directly related to the individual's own work. The thought process of considering what its practical significance may be is neglected; indeed, the need for it is either disregarded or denied. The individual is unable to establish any relationship between the law and the example, between the rule and the practical case.

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This incapacity promotes hostility towards innovation, and practice becomes no more than routine. By losing or deriding the power to think, the practical man deprives himself of the opportunity to keep abreast of progress. If he suspects that his method of work is obsolescent he will lose his enthusiasm for both theory and practice. In this way the productivity that is so important both for himself and for the community is lost.

Any reform of the educational system must therefore aim at providing constant training that will show how theory and practice can support one another. Elimination of the psychological defence mechanisms against the abstract will depend largely on the success achieved in creating a constructive relationship between reason and emotion.

Whether the improvements and changes made bear on this last point or on those explained earlier, the question of methods of education, whose importance has gone largely unrecognised and was for long denied recognition in the universities, must always be given prominence. It is no exaggeration to say that the effectiveness of the educational system will depend in the future on the extent to which forms of education suited to the subject and the situation are developed thoughtfully and critically. At the present time this applies particularly to the teaching of science, which has to make it possible for complex discoveries to be conveyed in a simplified but not distorted form. But apart from this qualitative aspect, the quantitative aspect must be borne in mind. In view of the wealth of available information, the question arises with especial urgency how to make a selection which is at the same time pertinent, intelligible and educationally effective. No future educational system will be any better than the present one except insofar as it gives more care to thinking about educational methods.

Methodological care will also be necessary if the educational system is to be brought out of its pre-industrial state by the introduction of the latest teaching aids and procedures. Whether we are dealing with television or with

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programmed instruction, consumate thought on educational methods and impeccable educational lay-out are necessary if such aids are to achieve their object. The possibilities they offer for organisational strategy are dealt with in the next section.

2. Institutions

The principles discussed above cannot be applied in practice unless they receive deliberate support from the teachers' attitude. Only on this condition will teachers show the necessary flexibility of method and assurance in the new style described in the next section. Similarly, the principles we have discussed can only be put into practice if an appropriate institutional framework for the purpose is developed. Education cannot be suitably reorganised without political decisions. The importance of such institutional reform cannot be overestimated, for the system determines our conduct to a certain extent.

What organisational measures are called for if any progress is to be made towards the principles stated under III (1)? If we try to answer this question with reference to age groups without at this stage going into the question of what each group is to be taught, then the first requirement is the general establishment of pre-school education for children aged from four to six. Our present-day knowledge of the processes of socialisation and learning indicates that this pre-school education must form the basis for primary education which should last some six to eight years. If the primary school is to be democratically effective, as the future of human and industrial society demands, the system of classes based on age must be abandoned. This will also eliminate the reason for limiting primary schooling to six years. It will be possible to continue it for eight years, until diversification of subject and function becomes appropriate. This will then be acceptable, for differentiation in terms of achievement will have begun at elementary school age, earlier than it does at present.

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It has long been agreed that classes based on age are absurd. Yet apart from certain exceptions nothing about them has been changed, mainly because of organisational and staff difficulties. Purely in order to clarify the matter, therefore, we should first ask what form a school without age-classes can take. Only then should we discuss what restrictions are necessary on grounds of organisation, equipment and staff.

Age-classes can only be abandoned if all the compulsory and optional subjects taught in the school - except for what is done to promote physical and recreational well-being - are reorganised in a differentiated system of courses with clearly-defined objectives. Schools must be sufficiently large to be able to resume these courses at regular intervals. Guidance will have to be provided to ensure that each pupil attends the compulsory lessons, and later enrols for optional courses, in an order and in proportions that meet his requirements. The changeover from age classes to groups based on ability is the best way to achieve the reorganisation of a vertical into a horizontal system, as explained in Section III (1).

Each course can be covered twice (i.e. it can be repeated in a more thorough way). After the first run the results obtained will be assessed in the light of the objectives laid down in the programme. These results will decide which pupils need not repeat the course but may pass on to a new one. Thus there is no question of "promotion" on the basis of overall knowledge acquired, but merely of deciding what sphere of knowledge and experience the pupil can leave behind him. In this way the pupil can gain a varying number of study certificates according to an individual choice, with a limited compulsory element. The certificates obtained will form the basis for the decision on what type of secondary education he will attend after completing his eight years primary schooling.

Which authority will have the final power of decision on the courses a pupil shall take and the secondary school he shall attend is a matter of policy that does not affect the proposed system of courses. What is important is that the system described meets the conditions and

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requirements enunciated in those parts of this study that contain the social analysis and state the principles. It also has the advantage of arousing the desire to learn and mobilising the energies necessary to see the studies through. It promotes deliberate learning and offers relatively early and frequently experience of success as an incentive to further study though without mobilising competitive feelings unduly.

A variant of the system is possible where recourse can be had to information media (especially school television) for a large part of the compulsory subjects. In such cases instruction may be arranged as follows:

- imparting of information through mass media (large groups);

- acquisition of knowledge and skills (excercise) with the assistance of a teacher (small groups);

- home study and guidance by a tutor (individual).

The small groups serve as a means of control and to work up and go further into the subject. They should exist at two grades of intensity, so that here too account can be taken of individual needs and levels. The system presupposes confidence in study groups which have counsellors available for only part of the time.

The primary school is followed by the secondary school, which begins with a compulsory phase of two years for pupils aged fifteen to sixteen and then branches out into different types of study.

Secondary studies must be based on the course system of primary education and continue it. For any repetition that may become necessary small groups are to be formed, with the help of programmed instruction, outside the regular system based on advance. The courses available at secondary school must be functional in relation to the pupils' future occupations. The most practicable way seems to be make a distinction between jobs in production, in distribution (including management) and in "human services" (health,

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education, law, religion, etc.). Three branches will therefore have to be developed - technology, organisational techniques and "humanistic" studies. The third group will be primarily for the traditional university-trained professions. For that reason it is important that production and distribution should also provide opportunities for further study. These opportunities should differ only when the first practical experience of the job is acquired. In the "humanistics" branch this will have to be later because of the nature of the experience to be gained.

At the age of seventeen or eighteen, after the completion of secondary schooling in the technology or organisational techniques branch, is therefore the time for basic occupational training. This too should concentrate on basic methods, such as physico-mechanical treatment of materials, chemical changes in materials, data-processing, etc. More needs to be done, and not only inside companies, in the direction of training by stages, and thus of gradual specialisation. This will be necessary because only the larger concerns come up to what is required of occupational training in the future.

The "humanistics" branch of secondary education should be continued by a pre-university school. The main features of this will be scientific study techniques, basic training in the human and social sciences and continuation of the system of courses in the secondary school.

This scheme presupposes that defence will be ensured by volunteers in a professional army. Insofar as general militia training also remains necessary, it is good policy only if related to civilian occupations, so that training is not completely broken but merely made specific to a special case. This should be done at the age of 19. Thereafter occupational training (in a technical college) or a period of university study will be possible.

Such study will take place in university departments. Attempts to uphold the fiction of unity between university research and teaching prevent reform, for such unity is, rightly, viewed differently by the various faculties. The

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effective use of work material (e.g. documentation) and opportunities for contact between different disciplines can be ensured by locating several study departments in the same place, their number being appropriate to local and regional conditions. Contacts and joint programmes may provide the opportunity for initiative on the part of students.

The departments will come up to scientific standards if their teaching of their subjects is scientific. Their scientific nature will be demonstrated and tested in the way in which students and teachers work together. The work programme that is necessary for this purpose will include elements of research, to deal with which the teachers in the departments must have passed through research departments in the course of their own studies. These departments can be attached to the study departments or be organised as independent research institutes. They should be linked with teaching by means of temporary combinations of both functions in a single person.

The studies themselves must combine intrinsic scientific value with professional applicability. Their underlying feature must be a division into two stages: two years' "basic studies" (Grundstudium) and two years' "specialised studies" (Hauptstudium). These may be followed by an examination based on professional requirements. An alternative is to continue with "further studies", (Aufbaustudium) designed either as an additional and wider-ranging study course or in the form of research carried out in association with a research department (or institute).

This brief sketch raises the question how such studies can be maintained if they are not orientated from the outset towards a particular occupational goal. To answer this question it would be necessary to consider problems of content that cannot be discussed here. It can however be said that, under the traditional division, this problem is primarily of concern to arts and social science faculties. Insofar as arts faculties are to become, to a large extent, departments for the study of human relations, the extent to which future workers in information media as well as future teachers study and take examinations in them will be simply a question of the number and nature of the examinations.

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The structure of the social science and engineering departments should allow for the admission of students who have completed the technology organisational techniques sections of secondary schools, including technical schools.

Pupils who have completed occupational training at the age of seventeen or eighteen should in principle also be able to enter a department, especially an engineering, industrial management or administration department. This depends on diversification of the specialised training given in technical schools. A kind of technical school must be continued to provide a year's pre-university studies, in which technical school leavers will have to prove themselves in the theoretical side of their chosen occupation in order to gain admission to university studies. One year may seem rather short as a period of preparation for higher studies. But it must be remembered that under the present project the school years will be more concentrated and scientific. Moreover, secondary schools are already professionally orientated to some extent. Thus, insofar as the subjects taught are dealt with more intensively as a result of the new organisation of teaching and the step from vocational training to higher studies must be confined to pupils who are especially gifted on the theoretical side, one year's preparation for such studies should suffice. What matters is that the student should show his ability in the theoretical aspects of his chosen subject.

The year of pre-university study can then be followed by two or four years of university studies. If both alternatives are available it will ensure that the need for a medium level of professional qualifications in manufacture and administration can be met.

From these various alternatives it will be clear that every student will be able to complete his studies by the age of 24 or 25, unless he embarks on research or further specialist study. One of the two years that students on the "humanistics" side will have gained underthe above system will be spent in a practical course on the job, between the basic and the specialised studies and the other in (unpaid) qualifying training after the completion of studies.

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The plan outlined here is in harmony with the view, which is justified on many grounds, that entry into even the highly-qualified professions should take place earlier than is usual at present. It can of course be objected that this limits freedom in study too severely. But here too we must free ourselves from ideas derived from past experience. It should at least be observed that the system of courses described here offers considerably greater freedom, i.e. individual options and incentives to learn, than can be said of present-day schools. And the more flexible guidance of pupils will qualify them to make better use of their opportunities for study, even if the formal freedom these offer is prehaps less. To provide more opportunities for choice it will be necessary to ensure:

- that additional study is not dependent on ability to pay for it, and

- that with a certificate of a secondary school qualifying course a candidate will be able to attend a study department without going through a pre-university school, or after one year if need be. Such students will then have greater freedom of choice in their studies.

Such concentration of study is, finally, justified by the need to apply here too the principle, already accepted at school and in vocational training, of learning what is appropriate to the student's stage of development and his situation. This presupposes of course that a wide range of "contact studies" (recyclage) is provided from the outset. They should not be designed, as present refresher courses are, simply to brush up previous knowledge and as a way of learning about new discoveries in the field in question; they must also provide an opportunity for supplementary study in accordance with each student's professional qualifications and advancement.

Whatever their precise function, these "contact studies" will to a large extent have to be pursued by correspondence. The educational material required must be designed and understood as suggestions for private study. Unlike the usual lessons in correspondence courses, it will not contain everything that is to be learned but will indicate what can be learned elsewhere and how. The courses connected with the "contact studies" can lead up to certificates extending the system of courses introduced for primary and secondary education.

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There must be contact studies for every profession. Thus under this plan adult education will have new and far-reaching tasks. It should therefore not be left to individual power groups representing social interests. Ways should be sought of systematising this unco-ordinated diversity without restricting the opportunities for individual development.

This being so, local and regional authorities (such as "Gemeinden" or "Kreise") seem the most appropriate bodies to take charge of adult education. There are several arguments in favour of such an arrangement:

- the future of adult education must be understood and represented as a matter of public concern;

- insofar as it must to a large extent meet specific professional needs, adult education should be closely linked to the situation in the occupations but should as far as possible not be provided internally;

- to the extent that, however functional it is, adult education will also, in a large degree, offer cultural programmes, most local authorities have considerable experience in the matter;

- having little hard-and-fast organisation, adult education is a suitable field for "self-government", promotion of which is considered desirable.

Adult education will in the future, then, be provided in municipal centres for education and culture or will at least be organised and co-ordinated by them. The staff of these centres must investigate needs by means of supra-local analyses, special local features being taken into account. The study programme provided on the basis of such surveys could consist of activities proper to the centre itself or, in certain cases, of activities organised in conjunction with other institutions. As far as the qualifications and number of the staff required are concerned, no models are available in the Federal Republic of Germany. But the need for such staff must be clear to an unprejudiced observer.

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The centre also has a spatial aspect. It must have its own building. The adult education of the future will not be confined to the evening. Such education for particular occupational groups, given in the morning or afternoon, will be more frequent than at present. The centre can above all be a place for educational leave. Equally important, it should always be open for individual use and advice. This means that it will have to include the public library, which will gradually become a "home study centre" having all kinds of working aids available, in particular programmed instruction material and recorded television programmes for individual study. The centre must also have workshops to promote creative activity.

A centre's effectiveness will depend largely on the opportunities it offers the individual to continue his education. It is important that people should be able there to pursue individual study, for example with a view to acquiring the knowledge necessary to join a study group; such groups can be more effective if their composition is more homogeneous than is usually the case in adult education at present. One task of the staff of the centres will be to see how work and study groups can be evolved on the basis of individual efforts. At the same time observation of individual activities will provide a realistic check on the open cultural facilities offered by the centre; these should be on lines similar to the traditional "people's university". In this way the cultural courses and events which are arranged will be anchored in the life of the local community.

The centre will also be a place of political education. The place given to the human and social sciences in the new school curricula will provide a better basis for the political education of adults, and suitable activities of this kind will arouse marked interest. Political education will then again be seen to be primarily something for adults, for they alone have political experience in the fullest sense. The centre can at the same time provide a reliable platform for discussion of conflicts of interests and the background to them. The centre's public nature will ensure that political education is not indoctrination in disguise.

But in addition to all this the centre will have to be a place for continued occupational training for adults. This of course presupposes co-operation. Only close contacts with

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firms and professional and trade associations can give a clear idea of what is needed and what should be provided. But what a centre offers cannot be determined solely by the information and suggestions provided by representatives of the groups concerned. Individual requirements and the needs of the economy as a whole will also have to be taken into account; they do not necessarily coincide with what firms and associations regard as most urgent. This occupational adult education can also include subjects regarded by the participants as having professional relevance even if not designed to meet any specific professional emergency. What is important is that useful programmes as well as necessary ones corresponding to a need of the labour market should be available; only on this condition will it be possible to acquire specific and diversified qualifications. These programmes can include complementary courses (business studies for technicians and vice versa), as well as remedying deficiencies in knowledge, preparing students for changes of occupation, familiarising them with phenomena and problems in related occupations, etc. There must thus be overlapping of subjects in the centres, even in occupational training. This may help to increase the mobility of workers at all qualification levels.

In view of the increasing concentration of vocational training, this occupational training for adults will increase in volume and importance, and the question therefore arises whether it should not be all the more firmly established in those places where, to a large extent, it is already provided, namely in firms and in trade and professional associations. In many special cases where adjustment to a new situation is necessary this will certainly be more advantageous. But in view of the very importance of the task it will in the long-run be necessary to make it a public matter, which means making it available to the public and giving it a general institutional basis. The centres will make it possible to ensure that every course is open to everyone wishing to attend, whether from professional motives or not.

It will be for the centres to see that the studies available are of general and not merely local interest. In view of the mobility of the population, everyone must be able to take up his studies in any place at the point at which he stopped them elsewhere. This can be achieved by a uniform

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system of courses throughout the Federal Republic. It means that adult education must provide a continuation of the course system devised for the schools and provide courses with definable aims, objective tests of attainment and appropriate certificates. This will overcome the traditional antithesis between school and adult education. Adult education has already prepared for this development to a certain extent. It will therefore be necessary to adapt to the new conditions the system of diploma courses planned by the "people's universities", which have already begun to apply it in the teaching of languages.

3. Curricula and methods

Organisational problems are in the forefront of the present discussions on educational reform. Attention has been largely concentrated on the trend towards the comprehensive school. Here we have tried to make clear the ultimate consequences of this trend. Our main aim has been to take the debate beyond the question of the arrangement of "distribution circuits" in education and their attendant problems. The objective should be to avoid the congestion that occurs in such circuits; this will be particularly serious in the German school system in view of the partial reforms resorted to for some time past, the danger-spot in which has always been these circuits. The real effectiveness of any institutional plan, including the present one, therefore depends on what is taught within the organisational structure and on how it is taught.

There are several reasons why comparatively little has been said so far on questions of curricula. Firstly, unprejudiced discussion is hampered by specialist interests. Secondly, even on an objective view it must require considerable courage to give something up when one has no expectation that advance institutional arrangements will be made or help provided. Thirdly, any drastic reform of school curricula presupposes reform of the whole sequence of studies. Nevertheless, a start has been made on curriculum research. Its object is to reduce the content of curricula to something fundamentally reasonable and at the same time suited to the situation. Here we must of necessity anticipate the results of such research; but there seems to be agreement on the fundamental principles of curricula reform.

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The productive concentration aimed at in this scheme applies not only to the institutions but to the curricula as well. It will only be possible as the result of resolute modernisation, which must free education from the dead weight of tradition. This can be seen in:

- the tendency towards encyclopaedic education,
- the manner in which historical aspects are brought in,
- the undue stress on the formal and quantitative side,
- the increasing specialisation,
- the complicated and obsolete methods.

It will be possible to stop the trend towards "adding-on", with the resultant hotchpotch of subjects, only if interdisciplinary categories can be found on which to base curricula. Such categories suggest themselves if it is accepted that, in order to find one's way in life, three fields of knowledge must be recognised and studied: it is with them that the humanities and the natural and social sciences are concerned. What they have to offer us must therefore be given equal weight in the curriculum, and in this way the preparation given for the three most important spheres of life will also be placed on an equal footing. In addition, specific place must be found in the curriculum for the dimensions of time and space and for study of the means of knowledge and understanding, i.e. the language of words and numbers. Physical training will constitute the eighth sphere. Taking the whole period of education into account, the following proportions commend themselves: 10% for the time dimension, 5% for the space dimension, 10% for physical training and 15% for each of the other aspects.

This programme should be based on a school week of five days with afternoon work. The fundamental plan enunciated in section III (1) removes the need for teaching to be organised according to a weekly timetable. The aim should rather be to spread the subject-matter in suitable proportions

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over each pupil's programme for the year, which will comprise a series of courses. The underlying principle should be that all comprehensive school pupils should have equal shares of the sum total of teaching provided, although they may reach different levels in individual subjects.

With the system here proposed it may be possible to give effect to the basic idea of not offering a little of as many subjects as possible but of dealing with a limited number of subjects thoroughly. We may illustrate this with an example. It is enough to gain a close acquaintance with just one form of artistic expression; no pupil should be compelled to take lessons in both music and pictorial art. If a not very interested pupil has a choice between them there is a greater chance that he will really learn something and perhaps even gain an understanding of aspects of relevance to artistic expression in general, while a pupil who is genuinely interested in both subjects will make his own arrangements accordingly.

Special attention will have to be paid to the social sciences, for planning in this field has hardly any previous work or experience to build on. Here a scheme must be developed that combines in a single, effective system the great variety of fragments - from road safety education to European or oriental studies - included in different school curricula. What must be done is to place the study of community developments.- which at present is limited in time and is given, not by accident, under the misleading name of civics teaching (Gemeinschaftskunde) - in a context based on the social sciences, the only one which can give it its full value in the curriculum. Such a context will also help to ensure that adaptation and criticism are not viewed as conflicting attitudes. Here sex instruction can also find an appropriate place in the school.

The programme briefly outlined above holds good for the period following elementary education, beginning on average with the third year of comprehensive school (age of 9). In the preceding first phase of education (the infant school and the first two years of the primary school, in which elementary education is provided), the emphasis will have been placed on teaching children the techniques of civilisation, in the form of general education, and on making them familiar with their environment (which at present is done in a context of local history and geography, or "Heimatkunde").

The division of functions in secondary schooling will produce a different emphasis in the curriculum. These functions indicate what will be restricted and what added. The principle of groups based on ability will continue to apply. In this way widely varying levels may be attained in different functional sections

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or branches, and this may determine the further course of education. Insofar as the secondary school sections follow on from the varying subjects available in primary education, different initial levels may exist within a single section. If a link is established between choice of subjects and requirements concerning results obtained, it will also be possible to combine an institutionally limited number of branches with a high degree of individual differentiation. However, pupil guidance must not be abandoned.

As the first preparation for working life is given during the period of secondary schooling, account should be taken at that stage of the problems now being discussed in connection with careers teaching. In the technology section it must be remembered that the structure and situation of a firm today provide the basic occupational experience, while in the organisational techniques section it should be borne in mind that there, too, technology plays an important part. In all cases, however, regard must be had to the economic and social environment which gives the place of work its character. Pupils should receive critical preparation for the standards of behaviour they will encounter.

When explaining the purpose of pre-university schools we stated the subjects on which emphasis should be laid. It is equally unnecessary to deal further here with basic vocational training; to do so we should have to review each kind of course from the angle of its possible modernisation.

Curricula for higher education too can be deduced in each case from the material requirements of the subject and sometimes from professional conditions. A reform of studies within each department will nevertheless be necessary. It should mean concentration on the fundamentals of the subject in question, its methodology and didactics and the question of relevance to occupational practice and to neighbouring disciplines. Such reform should therefore be guided by the following questions:

- From what may the scientific nature of a subject be apprehended?

- What links between understanding and application should be stressed?

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- How can one best gain practice in recognising both?

The range of possible subjects in adult education was discussed when we stated the principles underlying it. One of these principles is freedom of choice of studies. But it must not be overlooked that every person has certain motives for his choice. These must be given especial consideration in the occupational training of adults. That is why even in adult education there will in certain subjects be diploma courses, it being left to the individual's discretion what combination of diplomas he acquires in the course of time.

It will only be possible to impart the knowledge it is desired to convey if suitable methods are found and applied. Thus any plan for the whole educational system as a whole must deal specifically with possible methods. Our experience that the implementation of proposals and maxims relating to methods depend on individual ability even more than the ensuring of uniformity of what is taught, should not be a hindrance to deal with methodology.

In the present context methods are to be understood in the widest sense, as encompassing:

- the organisation of instruction;

- the style of work and tuition;

- the various techniques for effectively imparting what is desired to teach.

The most important feature of organisational strategy in education has already been mentioned: the communication of information to large groups through the mass media; it is worked on in small groups, with teachers; and tutors give advice on individual work. This will be supplemented by other systems for combining educational aids (multi-media systems). Written material can be supplied with television programmes. Thus the function of direct teaching is not superseded any more than it is by programmed instruction. In particular such teaching can serve the following useful purposes:

- establishing a consistent level of starting knowledge,

- checking pupils' progress,

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- repetition and exercise,

while being relieved of the task of imparting information that is incontestable.

With the system of courses proposed here, reference to programmed instruction will often be advisable as a means of levelling-up of pupils' progress.

The use of information media in the education process does not deprive the teacher of his functions, but it does change them. He will have to change his role. He can do so only if he consciously becomes aware of the process. As he is no longer the primary source of information he will lose one of the foundations of his authority, and this he will have to regain through his relations with his pupils. The use he can make of what they say, how he can turn it to the benefit of others, will be crucial. He must cease to be the source of what is learned and become an intermediary, an aid to understanding, an interpreter. Thus "ex cathedra" teaching will no longer be appropriate. In many cases the situation will be the sole indication of what aids to learning are suitable.

Teachers will have difficulty in getting used to this new style of teaching. They will have to be made familiar with it. For this purpose training in group work will be necessary. But this will be of little use without conscious recognition of the fact that it is not a question just of a productive adjustment technique in keeping with the situation but of promoting an attitude which should be regarded as a matter of course in a form of society that claims to be democratic.

The change in the basis of authority will also affect the techniques used to attain the educational objective. If, regardless of what is taught, the aim is to develop a critical approach and appropriate use of the pupil's abilities, this can best be done methodically by means which are not dependent on a position of absolute authority but whose function as aids to learning are apparent. To this end the teacher will of course still have to know a great deal, but his effectiveness will depend on the technical ability he displays as an intermediary.

Traditionalists will fear that such a development will lower the level of achievement. This will not be so, provided at least that the teacher takes his new role seriously. He will, however, have to devote positive thought to it and train

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for it. There is no doubt that at first he will regard the change in methods as a diminution of his functions. He is bound to feel that his scope for action has been restricted if, on the one hand, knowledge is transmitted by information media and, on the other, pupils have to rely more on themselves. Nevertheless, he will be essential to success in education. With the increasing demands made on pupils he will remain as intermediary between them and what they have to learn, an essential aid to understanding in their dealings with knowledge. Precisely because his position is no longer so clearcut, his possibilities of action are greater, at least if he is ready and able to recognise them in the situations that arise.

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IV. WAYS AND MEANS

It will undoubtedly be extremely difficult to put into effect a plan involving such sweeping and far-reaching changes as this one does. Apart from the human impediments (II, 3), foreseeable as well as unsuspected obstacles will appear, for the manifold interactions of all the various problems will cause repeated setbacks or create fear of attempts at change. These interactions, then, must constantly be borne in mind at the planning stage, as must outside phenomena and forces which affect education. Consideration will have to be given not only to educational policy underlying fundamental decisions on institutions, which may have very varied motivations. There are other factors: decisions in different fields such as regional planning and land and housing policy, may affect education, for population distribution is not without relevance to the structure of the educational system.

This being so, when we come to consider in what form effect can be given to these ideas, the question arises what courses should be adopted, what first steps can be taken. In view of the complexity of the situation we must determine at the outset:

- what parts of a reform are relatively easy to isolate and can thus be begun first without any great misgivings;

- what must be given priority in order to create the conditions necessary for more far-reaching reforms;

- what are the fundamental difficulties calling for particular reflection before any attempt can be made to overcome them.

One aspect to which it is relatively easy to give separate consideration is of course the first stage of education, i.e. pre-school education. At this level, then, an energetic start must be made with reform. Institutionally this will be relatively easy, for it is hardly a question of changing anything but of creating something new. There are of course considerable psychological barriers. It is feared that the intellect will be developed too early and too much will be

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required of children. The value of learning through play must therefore be made apparent. The second difficulty is that it is not enough to urge training for persons who are to work in pre-school education. It is not even sufficient to devise plans for such training. It is necessary to go further and clarify the status of the persons in question. Much that at present is separate in the training of kindergartens and elementary school teachers will have to be combined in future. This however presupposes that they will be placed on a par with schoolteachers of all kinds.

Adult education, too, can be considered in relative isolation up to a point. It must of course always be based on what the school has done, but a start can be made on systematising its institutional structure without regard to the scope and degree of school reform. The difficulties here, again, are mainly a question of mentality. Nearly all statements about adult education are determined by a conception of freedom that assumes the state to have more power than is now the case. As a result, what adult education offers is influenced by group interests, which have erected a barrier against liberal planning. Once adult education is oriented towards the requirements of society and the needs of different age groups, establishment of centres for education and culture as proposed above will be an obvious consequence.

The personnel problems which will arise here, as in pre-school education, should be capable of solution. To a certain extent it will still be possible to resort to part-time workers. In view of the present influx into the universities there will in future be a sufficient reservoir of prospective teachers for a considerable increase in the full-time staff. It will be necessary to make arrangements to prepare the specialists in the various subjects for the tasks of communication and planning that will confront full-time adult education workers.

It would also seem relatively easy to implement the objectives here outlined for vocational training. In this field benefit can be derived from the thought given to, and experience gained from "graduate training".. Any difficulties that arise in the future will be connected with discussion of the division between works and college training. If it is grasped that the division is not just a matter of time but also of pupils' receptivity, there will be greater understanding for an arrangement which at present is widely rejected. On the one hand, it is the tenth year at school as here proposed,

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and the concentration of the education imparted that justify the important place given to works training. On the other hand, what is left for the trade college to do cannot be achieved on a basis of attendance one day a week. It is therefore desirable that the instruction in trade schools should not be given in fragments but should be concentrated in compact periods. Separate decisions on the duration and place of such instruction will have to be taken for each occupational sphere.

Leaving aside the particular fields mentioned above, there remains the question where reform of the school system in the narrower sense must begin. If the objectives are as far-reaching as proposed here, reform of the subjects studied in teachers' training becomes a key problem. The most urgent task is then to prepare teachers to be able to achieve the reform.

This brings us to the following principles for the reform of teachers' training:

- Only a form of training common to all kinds of school is worth while.

- The common denominator can be deduced from the need to prepare prospective teachers for their role as intermediaries, to which end they must be confronted with a science of education which they can grasp empirically and practise.

- The study of two or three subjects will be replaced by scientific study, from an educational angle, of one of the areas covered by the primary or secondary schools or of the subjects of the elementary school.

If these three principles can be put into practice, then education will be a preparation for working life that meets the requirements of the future without losing its scientific basis. In short, the training of teachers in how to communicate must correspond to the training of pupils in how to learn. The consequent restriction on teaching qualifications is organisationally justifiable if there is a change from age classes to a system of courses for pupils of like ability. However, the change from the study of individual subjects to that of whole branches will have to be effected gradually and pragmatically, for it cannot be achieved in all its details until the curricula for the future course system have been established.

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This brings us to the most difficult and complicated problem, the one to which the most time will have to be devoted. The change from a system of age classes to a curriculum for groups based on ability is the most far-reaching reform here proposed, and it calls for comprehensive preparation at many levels. It must be established:

- how the contents and subdivision of the syllabus are to be arranged;

- how the objective of each course is to be fixed, how pupils can be prepared for it and how attainment of the objective can be verified;

- what organisational steps must be taken to create the institutional foundation necessary for the change.

In order to place the system on a reasonable educational basis, commissions will have to be set up to make proposals for reforming the syllabus in the light of:

- the structure of each subject taught;

- our experience of man and fundamental human objectives;

- the needs of society;

- the opportunities specific to each phase and those offered by technical conditions in the school.

Other commissions will have to be set up - some immediately, on an experimental basis, some following on from the commissions mentioned above - to work out a graduated syllabus for each branch, partially programmed so that the usefulness and validity of the proposals for courses and their objectives can be verified with the help of pilot experiments and tests.

It will also be necessary to form commissions to check experience of similar systems or experiments in other countries or the extent to which the organisation of the comprehensive school needs to be modified in order to meet such far-reaching changes.

Specialists in different fields, educationists, social scientists and school organisers should be members of the commissions. The discussions will reveal differences of

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opinion that go beyond the difficulties inherent in the subjects and which in present-day conversations on partial reform remain concealed. These differences must however be settled in public if we are not merely to cure symptoms but also modernise the system's fundamental organisation.

This, of course, will also involve a general reform of higher education, in particular of the studies entailed, not merely of teachers' training. Many of the present obstacles to reform will be removed once the fiction of the unity of university teaching and research is finally abandoned. The changes necessary will be seen more clearly and precisely as soon as the problems of a single faculty, or of a department to be formed, are considered. If a department falls behind in the necessary reforms because of a class interest, public opinion will, as a result of these changes, be able to exert a corrective influence. The problems of university reform, which are the subject of lively debate at the present time, cannot be discussed here, since we are concerned with permanent education. They will however be easier to solve once the overall approach has become easier to grasp. For instance, demands for participation will again be determined by the requirements of the situation instead of insisting on formalistic principles.

One difficulty that affects all parts of this plan lies in the fact that, with the greater differentiation in the educational system that is proposed, forecasts for planning purposes will become even harder. But our need for a sense of security should not mislead us into directing our attention the wrong way. It is not a question of devising a training system that will ensure a suitable job for everyone. What must be done is to develop an educational system that will in a relatively short time fit even a highly specialised person for employment in a variety of occupations. This aspect is of particular importance in the Federal Republic where employment forecasts, especially in fields requiring a university education, are rendered more difficult by irregular output of the universities over the past 50 years.

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V. CONCLUSION

The reader will have noticed that the political obstacles to implementation of the present plan have been largely ignored. That is partly due to the function of this study. On the other hand it should be observed that, while such obstacles can have very prejudicial effects and should not be underestimated, they are by no means inevitable. Any other view would deny the supremacy of political decisions and the prospect of their being guided by some common interest. It must further be remembered that politicians are in the habit of reacting to currents of public opinion. This raises the question how such currents can be so influenced as to make politicians think it worth their while to agree to changes on the scale here proposed. This can only be achieved gradually. But even in such a process one can usually detect signs of a change of mood, which should be acted on. The one important thing is not to lose sight of the objective towards which the individual steps are supposed to lead. It is not a question of avoiding or denigrating policies based on private interests but of recognising them for what they are.

The interest of politicians will naturally centre on the difficulty of finding the money. Implementation of the plan proposed here will without a doubt demand capital investment far in excess of the funds hitherto provided for educational purposes. Another objection is that under this plan it is much more difficult to estimate costs than it is in the case of reforms achieved by conventional means. This being so, the project may be dismissed as a delusion. It should be clearly recognised, however, that if it were to be thus shelved this would not be inexorable fate but a political decision.

What is lacking is not money but an attitude to money appropriate to the requirements of education, in other words an attitude that allocates funds in accordance with educational needs. If we really accept the proposition that education is as important an issue in the 20th century as the social problem was in the 19th, there can be no difficulty about finding the money. The problem of education in our century can of course be dealt with as the social question was in the last century. But the international consequences of that treatment should warn us against a repetition.

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An example of the kind of rethinking required to meet educational needs is provided by the problem of working hours. The objection may be made clear that under this plan the rising generation is not given its place in the production process early enough. To this it must be said that the time has come to look at the problem of reducing working hours from a new angle. We should not be concerned primarily with gradually shortening the working week by hours or half-hours. In future the reduction of working time should mean taking up an occupation later, giving it up sooner if one wishes, and in the interval having opportunities for educational leave far beyond the proposals now under discussion. An increase in such leave is inseparable from realisation of the present proposals, for the reform of the school system necessitates an extension of adult education making it more differentiated and formal. In some occupations, one day a week will have to be set aside for further training. In others workers will have to be released at longer intervals for several months of such training. A programme of social and cultural studies will have to be devised for the projected one week's educational leave at present under discussion.

Such leave is another example that illustrates the aim of this project: permanent education in the service of man, constant training in how to learn.

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